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ATTORNEYS FOR PLAINTIFF AND PROPOSED CLASSES

**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION**

TECHNOLOGY HOUSE CALL, on behalf of itself and all others similarly situated,

Plaintiff.

V.

(1) MICRON TECHNOLOGY, INC., (2)
MICRON SEMICONDUCTOR
PRODUCTS, INC., (3) MICRON
CONSUMER PRODUCTS GROUP,
INC., (4) SAMSUNG ELECTRONICS

Case No.

CLASS ACTION COMPLAINT

JURY TRIAL DEMANDED

1 CO., LTD., (5) SAMSUNG
 2 SEMICONDUCTOR, INC., (6) SK
 3 HYNIX, INC. (F/K/A HYNIX
 4 SEMICONDUCTOR, INC.), (7) SK
 5 HYNIX AMERICA, INC. (F/K/A
 6 HYNIX SEMICONDUCTOR
 7 AMERICA, INC.),

8 Defendants.

9 Plaintiff (“Plaintiff”), on behalf of itself and all others similarly situated, alleges as
 10 follows:

11 INTRODUCTION

12 1. This is a class action on behalf of all persons and entities in the United States who purchased Dynamic Random Access Memory (“DRAM”) directly from the named defendants from June 1, 2016 through February 1, 2018 (the “Class Period”).

13 2. DRAM store digital information and provide high-speed storage and retrieval of data. DRAM is used in personal computers, servers, laptops, tablets, televisions, printers, cameras, cellphones, and in industrial applications, such as automotive, military, and aviation devices. DRAM is a computer’s main volatile memory. It resides in modules inserted into the motherboard and is the most commonly used type of RAM in electronic consumer and industrial devices.

14 3. During the Class Period, Defendants agreed to delay or slow capacity, or not to expand capacity at all. Defendants’ conduct was meant to stop DRAM prices from falling and, did, cause prices to increase dramatically.

15 4. Defendants Micron Technology, Inc., Micron Semiconductor Products, Inc., Samsung Electronics Co., Ltd., Samsung Semiconductor, Inc., SK Hynix, Inc. (f/k/a Hynix Semiconductor, Inc.), and SK Hynix America, Inc. (f/k/a Hynix Semiconductor America, Inc.) (“Defendants”), collectively account for over 95% of DRAM market share worldwide.

16 5. Plaintiff, Technology House Call, alleges that during the Class Period, Defendants conspired, combined and contracted to fix, raise, maintain, and stabilize the

1 prices at which DRAM was sold in the United States. As a result of Defendants' conduct,
2 Plaintiff and the Class paid artificially inflated prices for DRAM during the Class Period.
3 Such prices exceeded the amount they would have paid if the price for DRAM had been
4 determined by a competitive market. As a result of the conspiracy, DRAM prices rose on
5 average more than 300% during the Class Period.

6 **JURISDICTION AND VENUE**

7

8 6. Plaintiff brings this action under §§ 4, 12, and 16 of the Clayton Act (15
9 U.S.C. §§ 15, 22, and 26) for treble damages and injunctive relief, as well as reasonable
10 attorneys' fees and costs with respect to the injuries sustained by Plaintiff arising from
11 violations by Defendants of the federal antitrust laws, including Section 1 of the Sherman
12 Antitrust Act (15 U.S.C. § 1). 7. This Court has jurisdiction over this action pursuant to
13 28 U.S.C. §§ 1331, 1337(a) and 1367.

14 7. This Court has personal jurisdiction over each of the Defendants because
15 each of the Defendants transacts substantial business in this judicial district.

16 8. This Court has *in personam* jurisdiction over each of the Defendants
17 because each Defendant, either directly or through the ownership or control of its United
18 States subsidiaries, *inter alia*: (a) transacted business in the United States, including in
19 this District; (b) directly or indirectly sold or marketed substantial quantities of DRAM
20 throughout the United States, including in this District; (c) had substantial aggregate
21 contacts with the United States as a whole, including in this District; or (d) were engaged
22 in an illegal price-fixing conspiracy that was directed at, and had a direct, substantial,
23 reasonably foreseeable and intended effect of causing injury to, the business or property
24 of persons and entities residing in, located in, or doing business throughout the United
25 States, including in this District. Defendants also conduct business throughout the United
26 States, including in this District, and they have purposefully availed themselves of the
27 laws of the United States.

28 9. Venue is proper in this Court under 28 U.S.C. § 1391 because, *inter alia*,

1 each of the Defendants regularly conduct substantial business in this district and are
 2 therefore subject to personal jurisdiction, and because a substantial part of the events
 3 giving rise to the Complaint arose in this district.

4 **THE PARTIES**

5 10. Plaintiff, Technology House Call, is a California business with its principal
 6 place of business in San Francisco, California.

7 11. Defendant Micron Technology, Inc. (“Micron Technology”) is a Delaware
 8 corporation with its principal place of business at 8000 South Federal Way, Boise, Idaho.
 9 Micron Technology is a foreign stock corporation registered with the California Secretary
 10 of State and authorized to transact intrastate business in California. During the Class
 11 Period, Micron Technology manufactured, sold, and distributed DRAM throughout the
 12 United States.

13 12. Defendant Micron Semiconductor Products, Inc. (“Micron
 14 Semiconductor”) is an Idaho corporation located at 8000 South Federal Way, Boise,
 15 Idaho. Micron Semiconductor is a foreign stock corporation registered with the California
 16 Secretary of State and authorized to transact intrastate business in California. Micron
 17 Semiconductor is a wholly owned and controlled subsidiary of Micron Technology.
 18 During the Class Period, Micron Semiconductor sold and distributed DRAM to
 19 customers throughout the United States.

20 13. Defendant Micron Semiconductor Products, Inc. (“Micron
 21 Semiconductor”) is an Idaho corporation located at 8000 South Federal Way, Boise,
 22 Idaho. Micron Semiconductor is a foreign stock corporation registered with the California
 23 Secretary of State and authorized to transact intrastate business in California. Micron
 24 Semiconductor is a wholly owned and controlled subsidiary of Micron Technology.
 25 During the Class Period, Micron Semiconductor sold and distributed DRAM to
 26 customers throughout the United States.

27 14. Defendant Micron Semiconductor Products, Inc. (“Micron
 28 Semiconductor”) is an Idaho corporation located at 8000 South Federal Way, Boise,

1 Idaho. Micron Semiconductor is a foreign stock corporation registered with the California
2 Secretary of State and authorized to transact intrastate business in California. Micron
3 Semiconductor is a wholly owned and controlled subsidiary of Micron Technology.
4 During the Class Period, Micron Semiconductor sold and distributed DRAM to
5 customers throughout the United States.

6 15. Defendants Micron Technology, Micron Semiconductor, and Micron
7 Consumer are collectively referred to herein as “Micron.”

8 16. Defendant Samsung Electronics Co., Ltd. (“SEC”) is a Korean corporation
9 and maintains its executive offices at 129, Samsung-ro, Yeongtong-gu, Suwon-si,
10 Gyeonggi-do, Korea. During the Class Period, SEC manufactured, sold and distributed
11 DRAM throughout the world, including the United States.

12 17. Defendant Samsung Semiconductor, Inc. (“SSI”) is a California corporation
13 located at 3655 North First Street, San Jose, California 95134. SSI is a wholly owned
14 “multi-billion dollar subsidiary” of SEC. During the Class Period, SSI sold and
15 distributed DRAM throughout the United States.

16 18. Defendants SEC and SSI are collectively referred to herein as “Samsung.”

17 19. Defendant SK Hynix, Inc. (f/k/a Hynix Semiconductor, Inc.) (“SK Hynix
18 Korea”) maintains its head offices at 2091, Gyeongchung-daero, Bubal-eub, Icheon-si,
19 Gyeonggi-do, Korea. SK Hynix Korea “is the second-largest memory chip manufacturer
20 in the world, leading the global memory semiconductor market and the sixth-largest
21 company in the semiconductor field.” SK Hynix Korea’s “main products are DRAM and
22 NAND flash.” During the Class Period, SK Hynix Korea manufactured, sold and
23 distributed DRAM throughout the world, including the United States.

24 20. Defendant SK Hynix America, Inc. (f/k/a Hynix Semiconductor America,
25 Inc.) (“SK Hynix America”) is a California corporation located at 3101 North First
26 Street, San Jose, California 95134. SK Hynix America is a wholly owned and controlled
27 subsidiary of SK Hynix Korea. During the Class Period, SK Hynix America sold and
28 distributed DRAM throughout the United States. Defendant SK Hynix Korea and SK

1 Hynix America are collectively referred to herein as "SK Hynix."

2 21. Micron, Samsung, and SK Hynix are collectively referred to herein as
3 "Defendants."

4 **AGENTS AND CO-CONSPIRATORS**

5 22. Various other individuals, partnerships, corporations, and other business
6 entities, unknown to the Plaintiff, have participated in the violations alleged herein and
7 have performed acts and made statements in furtherance thereof. Plaintiff reserves the
8 right to name some or all of these persons as defendants at a later date.

9 23. The acts charged in this complaint have been done by Defendants or were
10 ordered or done by Defendants' officers, agents, employees, or representatives, while
11 actively engaged in the management of Defendants' affairs.

12 24. Whenever in this complaint reference is made to any act, deed, or
13 transaction of any corporation, the allegation means that the corporation engaged in the
14 act, deed or transaction by or through its officers, directors, agents, employees or
15 representatives while they were actively engaged in the management, direction, control or
16 transaction of the corporation's business or affairs.

17 25. Each Defendant or co-conspirator acted as the principal, agent, or joint
18 venture of, or for, other Defendants and co-conspirators with respect to the acts,
19 violations, and common course of conduct alleged by Plaintiff. Each Defendant and co-
20 conspirator that is a subsidiary of a foreign parent acts as the United States agent for
21 DRAM made by its parent company.

22 **CLASS ACTION ALLEGATIONS**

23
24 26. Plaintiff brings this action both on behalf of itself and as a class action
25 pursuant to Federal Rules of Civil Procedure, Rule 23(a) and (b)(3), on behalf of the
26 following class:

27 ///

28 ///

1 All individuals and entities who, during the period June 1, 2016 through
2 February 1, 2018, purchased DRAM in the United States directly from
3 one or more of the Defendants, their subsidiaries, or their affiliates.
4 Excluded from the Class are Defendants and their parents, subsidiaries,
affiliates, all governmental entities, and co-conspirators.

5 27. Plaintiff does not know the exact number of class members because such
information is in the exclusive control of Defendants. Plaintiff believes that, due to the
6 nature of the trade and commerce involved, there are likely thousands of class members,
7 geographically dispersed throughout the United States such that joinder of all class
8 members is impracticable.

9 28. Plaintiff's claim is typical of the claims of the class in that Plaintiff is a
10 direct purchaser of DRAM, all class members were damaged by the same wrongful
conduct of Defendants and their coconspirators as alleged herein, and the relief sought is
11 common to the class.

12 29. Numerous questions of law or fact arise from Defendants' anticompetitive
13 conduct that are common to the class. Among the questions of law or fact common to the
14 class are: a. Whether Defendants engaged in a contract, combination or conspiracy
15 among themselves to fix, maintain, or stabilize the prices for DRAM sold in the United
16 States; b. Whether Defendants engaged in a contract, combination, or conspiracy to
17 restrict output of DRAM sold in the United States; c. Whether Defendants restricted
18 output of DRAM sold in the United States and committed other conduct in furtherance of
19 the alleged conspiracy; d. Whether the conduct of Defendants caused prices of DRAM
20 sold in the United States to be artificially inflated to non-competitive levels; and e.
21 Whether Plaintiff and other members of the class were injured by the conduct of
22 Defendants and, if so, the appropriate class-wide measure of damages and appropriate
23 injunctive relief.

24 30. These questions of law or fact are common to the class, and predominate
25 over any other questions affecting only individual class members.

26 31. Plaintiff will fairly and adequately represent the interests of the class in that

Plaintiff is a direct purchaser of DRAM from one of the Defendants and has no conflicts with any other member of the class. Furthermore, Plaintiff has retained competent counsel experienced in antitrust and class action litigation.

32. A class action is superior to the alternatives, if any, for the fair and efficient adjudication of this controversy.

33. Prosecution of separate actions by individual class members would create the risk of inconsistent or varying adjudications, establishing incompatible standards of conduct for the Defendants.

34. Injunctive relief is appropriate as to the class as a whole because Defendants have acted or refused to act on grounds generally applicable to the class as a whole.

35. Plaintiff reserves the right to expand, modify, or alter the class definition in response to information learned during discovery.

TRADE AND COMMERCE

36. During the Class Period, Defendants, or one or more of their subsidiaries, sold and shipped substantial quantities of DRAM in the United States in a continuous and uninterrupted flow of interstate and international commerce to customers, including through and into this judicial district.

37. The business activities of Defendants that are the subject of this complaint were within the flow of, and substantially affected, interstate trade and commerce in the United States and caused antitrust injury in the United States.

FACTS

38. “RAM” or “Random Access Memory” is the memory or information storage in a computer that is used to store running programs and data for the programs. Data (information) in the RAM can be read and written quickly in any order. Normally, the RAM is in the form of computer chips, such as DRAM. The “D” in DRAM stands for “dynamic,” meaning that it is a dynamic form of RAM that must have its storage cells refreshed or given a new electronic charge every few milliseconds, or data contained in

1 the DRAM will be lost.

2 39. During the Class Period, Defendants collectively controlled a majority of
 3 the market – approximately 95% – for DRAM, both globally and in the United States.

4 40. The structure of the DRAM market makes it particularly conducive to price
 5 fixing and market allocation. The DRAM market exhibits many of the qualities that
 6 facilitate collusion, including: (1) substantial barriers to entry; (2) high market
 7 concentration; (3) inelastic demand; (4) homogeneous or commoditized products; and (5)
 8 opportunities to conspire. Together, these characteristics vastly increase the feasibility of
 9 anticompetitive conduct in the DRAM market.

10 41. Because the DRAM and semiconductor industry is highly concentrated and
 11 has relatively few member companies, there are several large industry organizations that
 12 cater to the manufacturers. These industry organizations host regular events and
 13 conferences for their members, which provided opportunities for collusion among
 14 Defendants and facilitated the conspiracy.

15 42. The Semiconductor Industry Association (“SIA”), according to its website,
 16 “is the voice of the U.S. semiconductor industry.” SIA’s leadership and its board of
 17 directors are entirely made up of industry executives. For instance, Sanjay Mehrotra,
 18 President and CEO of Micron Technology, is listed as the 2018 SIA Vice Chair. Micron,
 19 Samsung and Hynix are all members of SIA.

20 43. SIA hosts conferences, meetings, and various events, such as its “Annual
 21 Award Dinner” throughout the year. For instance, SIA’s 2016 Annual Award Dinner was
 22 held on November 10, 2016, and SIA’s 2017 Annual Award Dinner was held on
 23 November 14, 2017, where Mark Durcan, former Micron CEO, was a featured 2017
 24 award winner. These SIA events and meetings provided opportunities for social
 25 interaction or side conversations among Micron, Samsung, and Hynix that further
 26 facilitated the conspiracy.

27 44. The Korean Semiconductor Industry Association (“KSIA”) is a small,
 28 private Korean semiconductor industry organization. Samsung and Hynix are listed as

1 members of KSIA, and in March 2016, Sung-Wook Park, CEO and Vice Chairman of
 2 Hynix, was inducted as the President of the KSIA. Jin Kyoung Young, President of
 3 Samsung Electronics, is KSIA's Vice Chairman.

4 45. KSIA hosts various events and meetings for its members. These KSIA
 5 events provided opportunities for social interaction or side conversations among the
 6 Defendants.

7 46. The World Semiconductor Council ("WSC") is an international
 8 semiconductor industry organization "that brings together industry leaders to address
 9 issues of global concern to the semiconductor industry." The WSC lists that it
 10 "promote(s) international cooperation in the semiconductor sector in order to facilitate
 11 the healthy growth of the industry from a long-term, global prospective." The WSC
 12 conducts various annual events and conferences, such as its World Semiconductor
 13 Council Meeting for members held in April 2018 in Coronado, California. The
 14 conference was led by Sung Wook Park, CEO of Hynix. These WSC events provided
 15 opportunities for social interaction or side conversation among the Defendants.

16 47. The World Semiconductor Trade Statistics Organization ("WSTS") states
 17 that it is "the world's leader in global semiconductor market statistics." According to its
 18 website, "Fifty-five companies throughout the world...are members." Micron, Samsung,
 19 and Hynix are WSTS members.

20 48. The WSTS holds annual events and meetings for its members, such as
 21 board of director meetings, executive committee meetings, committee meetings, and
 22 regional chapter meetings. These WSTS events provided opportunities for social
 23 interaction or side conversation among the Defendants and its executives.

24 49. The Global Semiconductor Alliance's ("GSA") mission "is to accelerate
 25 the growth and increase the return on invested capital of the global semiconductor
 26 industry by fostering a more effective ecosystem through collaboration, integration and
 27 innovation." GSA members "include companies throughout the supply chain representing
 28 30 countries worldwide," including Micron, Samsung, and Hynix. Dr. Joo Sun Choi,

1 President of Samsung Device Solutions Americas, and Brian Shirley, Micron's Senior
 2 Vice President of DRAM & Emerging Memory Engineering, are both serving on the
 3 GSA board of directors. Dr. Sung-Wook Park, President and CEO of Hynix, currently
 4 serves on GSA's Asia-Pacific Leadership Council. GSA regularly hosts various events
 5 and conferences for its leadership, board of directors, and members. These events
 6 provided opportunities for social interaction or side conversations among the Defendants
 7 and its executives.

8 The Conspiracy Was Enacted Through A Variety of Means

9 50. Between May 2014 and August 2014, the average spot price for DRAM
 10 ranged between \$2.50 to \$3.00 per chip. Those prices went down month-by-month, and,
 11 by May 2016, average DRAM spot prices had fallen to \$1.00 per chip.

12 51. Between August 2014 and May 2016 (just prior to the start of the Class
 13 Period on June 1, 2016), the three Defendants responsible for nearly all DRAM supply in
 14 the United States sought to increase their own market share at the expense of their
 15 competitors. This competition led to supply exceeding demand so that prices for DRAM
 16 fell.

17 52. On Samsung's second quarter earnings call on July 31, 2014, Samsung
 18 noted its expectation for its bit growth to be higher than the industry: "For DRAM our bit
 19 growth in second quarter was approximately 20% q-on-q and we expect for the third
 20 quarter the market DRAM bit growth will come in at high single digit and we will
 21 outgrow the market's bit growth. At this point we expect the DRAM market bit growth
 22 for 2014 to be low 30%'s and we expect our bit growth for the year to be high 40%'s. The
 23 second quarter we experienced ASP decline of DRAM at low single digit." Samsung
 24 noted that "while the market demand remains strong, the suppliers weren't able to bring
 25 on additional supply much more other than us, and therefore we were in a very good
 26 position to capture this opportunity. That is resulting in the higher bit growth expectations
 27 that you have heard."

28 53. On Samsung's third quarter earnings call on October 30, 2014, Samsung

1 stated its policy “that our bit growth rate next year should or would have to be higher
 2 than the industry. That is our goal.” Samsung also noted in response to investor questions
 3 that “if we see the price to be very attractive, then we can use the idle capacity to increase
 4 our work in progress, which has helped us this year.”

5 54. On Samsung’s fourth quarter earnings call on January 29, 2015, Samsung
 6 discussed its plans to exceed market growth: “For DRAM business in Q4, our bit growth
 7 was flat from Q3 as well as ASP which was also flat. For the first quarter 2015 for
 8 DRAM bit growth, we expect both market and Samsung Electronics to be flat from Q4.
 9 We are expecting about mid 20% bit growth for market growth for DRAM and our bit
 10 growth we believe will outgrow that of the market growth.” Samsung noted that “a
 11 shortage in the industry would be great news. I don’t think a shortage will happen
 12 overnight. We will have signs to indicate a shortage coming forward, and so if we do see
 13 such signs such as the economy picking up or orders for other components picking up, I
 14 am sure – looking at all of the resources that we have, not only in our side but also in the
 15 overall semiconductor side, personally I think that we will find a way of capturing any
 16 shortage opportunities if they do materialize.” Samsung reiterated its plans to outgrow the
 17 industry: “the main reason why we are planning and expecting to outgrow the industry is
 18 because we have better productivity compared to our competitors based on our
 19 technology leadership in terms of the manufacturing. That is the main reason why we’re
 20 expecting to outgrow the industry.”

21 55. From 2015, Micron invited its competitors to stop adding significant
 22 capacity, and Samsung and SK Hynix responded.

23 56. At the UBS Global Technology Conference on November 17, 2015, Micron
 24 CFO Ernie Maddock recognized that Micron was in “an environment where you have
 25 closely held technology by a very limited number of producers.” Maddock noted that
 26 “you’re seeing some really rational decisions” and that “we don’t foresee a reason that
 27 there would be any significant DRAM capacity expansion.”

28 57. On Micron’s first quarter 2016 earnings call on December 22, 2015, Mark

1 Durcan, Micron's then-CEO, similarly noted that "[t]he DRAM industry consist[s] of
 2 only three technology developers, based on current long-term outlook we foresee
 3 technology driven supply growth slowing and can envision a future in which no
 4 additional DRAM wafer capacity is required." Micron estimated that "industry bit supply
 5 growth will be in a low 20% range in 2016, in line with demand and that industry
 6 fundamentals will remain healthy over the long-term."

7 58. In early 2016, DRAM prices were still falling with Micron reporting a
 8 "30% decline in revenue was paired with a quarterly loss." Reports noted "Micron's
 9 financial performance going forward is going to depend heavily on DRAM pricing, and it
 10 will take a stabilization of prices before Micron is able to return to earnings growth.
 11 Unfortunately for the company, there's not much reason to believe that DRAM prices
 12 will improve anytime soon." Analysts noted Samsung's past "aggressive behavior," with
 13 its focus on expanding its market share in DRAM. One commentator even noted that
 14 Samsung may be "the sole survivor in DRAM" as a result of its competitive behavior.

15 59. On Micron's second-quarter earnings call on March 30, 2016, Micron's
 16 then-CEO Mark Durcan stated "we think we would be foolish to be the first ones to take
 17 capacity off," while Micron CFO Ernie Maddock stated "it's a really ill-advised move to
 18 be unilaterally cutting production." Mr. Durcan also signaled that Micron would not try
 19 to take market share from its competitors: "Our focus isn't on market share. Our focus is
 20 on making sure that we've deployed equivalent advanced technology, at least equivalent
 21 advanced technology to our competitor, so that we're not incentivizing others to play for
 22 market share."

23 60. SK Hynix reported a 17% fall in revenue from the previous quarter in
 24 March 2016. While analysts suggested that Samsung appeared to be engaging in a
 25 competitive price war, SK Hynix announced its plans for "a below-industry growth rate
 26 while protecting its unit sales prices."

27 61. Soon after Micron's statements, Samsung announced at its first-quarter
 28 earnings call on April 28, 2016 that "For DRAM business in Q1 this year, our bit growth

1 was negative low single digit with low teens of ASP decline.” In response to investor
 2 questions, Samsung noted: “We don’t expect there to be major increases in supply of
 3 DRAM in the near future. . . . And we will in terms of full year 2016 DRAM shipment
 4 we expect to be in line with the market growth.”

5 62. At the JP Morgan Global Technology, Media and Telecom Conference on
 6 May 25, 2016, Micron’s then-CEO Mark Durcan noted that “bit growth next year will be
 7 20%-ish” “as long as nobody adds any incremental DRAM wafers,” and “[i]f wafers
 8 actually come down as we’re starting to hear some equipment suppliers talk about, then it
 9 could be mid- to high-teens, in which case that would be more beneficial.” Durcan noted
 10 that, in 2014, Samsung “added some wafers probably more than they in retrospect would
 11 have . . . I don’t think the intention was to oversupply the market. But following that, we
 12 had a fairly significant decline over the last couple of years” He continued “we all are
 13 going to either benefit or be hurt by excess supply in the marketplace.” Durcan stated that
 14 he expected Defendants to maintain discipline with regard to bit growth: “there’s a
 15 natural tightening tendency absent, somebody wanting to do something different than
 16 that. And so I’m – I actually remain bullish on the long term value, the DRAM business
 17 and the actions of the competitors in the marketplace.”

18 63. On May 26, 2016, the World Semiconductor Council’s 20th Anniversary
 19 Meeting took place in Seoul, South Korea. Park Sung-wook, CEO of SK Hynix was one
 20 of six chairmen of the World Semiconductor Council. The meeting was attended by
 21 representatives from China, Taiwan, the EU, Japan, the U.S., and Korea. Samsung
 22 Electronics was one of those in attendance, with one Samsung attendee quoted in media
 23 reports following the meeting. Just days before the start of the class period,
 24 representatives of at least two Defendants had a clear opportunity to communicate
 25 directly. Defendants are also all members of the United States’ Semiconductor Industry
 26 Association, which appoints delegates as members of the World Semiconductor Council.

27 64. Defendants shared their intentions to limit DRAM capacity through public
 28 statements, and each taking the agreed upon actions in response. Defendants made

1 statements in earnings calls, press releases, media, or other public documents and
 2 monitored each other's plans. Defendants' statements about capacity discipline, limiting
 3 production or supply, not increasing supply/capacity, slowing growth in capacity or
 4 supply, etc. represented a deviation from past business practices.

5 65. Defendants showed each other they were committed to maintaining
 6 capacity and supply discipline in the midst of steady increases in demand and rising
 7 prices – unlike in 2014, and contrary to their individual interest in increasing market
 8 share and short-term profits.

9 66. Defendants' joint conduct was extremely effective in causing DRAM prices
 10 to climb sharply from the middle of 2016 to the present. During this period, DRAM spot
 11 prices rose approximately 350% – an increase totally unique compared to DRAM's prior
 12 pricing history. Defendants, as a result, reaped tremendous profits during the Class
 13 Period. Defendants' illegal behavior, alleged herein, artificially stabilized and raised the
 14 prices of DRAM during the Class Period. As a result, DRAM prices were higher than
 15 they would have been absent the conspiracy.

16 67. On January 29, 2016, Samsung, at its fourth quarter 2015 earnings call
 17 forecasted growth in line with the market for the coming year: "For 2016, for the whole
 18 year, the DRAM market bit growth, we expect mid-20%, and our bit growth is expected
 19 to grow align with the market." Samsung also announced its plans to move away from its
 20 aggressive market share approach to focus "on maintaining our market leadership rather
 21 than own growth and continue to expand the sales of high value-added and differentiated
 22 products."

23 68. On June 16, 2016, Micron's CFO Ernie Maddock reassured analysts at the
 24 NASDAQ Investor Program Conference—in response to a question about Samsung's
 25 "disruptive" behavior—that "this idea that there is a general reduction in DRAM CapEx
 26 planned by our Korean competitors and that we believe is very consistent with other
 27 messages that we're hearing in the marketplace. So am I concerned? We're always
 28 concerned. Do we believe that that disruptive behavior is a high likelihood? It just

1 doesn't feel as if that's the case right now."

2 69. From June 2016 onwards, DRAM prices increased, yet each Defendant
 3 limited bit growth by not adding significant wafer capacity and consistently
 4 communicated their plans to grow in line with the market rather than pursuing market
 5 share.

6 70. On SK Hynix's July 21, 2016 second quarter earnings call, SK Hynix stated
 7 "DRAM bit shipment growth is expected to be in the high single digit in the third quarter,
 8 which will make the shipment growth for the year to be low to mid 20%, in line with
 9 market growth."

10 71. On its July 28, 2016 earnings call, Samsung reiterated its plan to grow in
 11 line with the market, predicting very similar growth to SK Hynix: "For the third quarter,
 12 we expect the DRAM market bit growth to be mid-teens and we will grow along with the
 13 market. And at this point, we expect 2016 DRAM market bit growth to be mid-20%, and
 14 we will grow in line with the market."

15 72. At the Citi Global Technology Conference on September 8, 2016, Micron
 16 CFO, Ernie Maddock stated: "there are again an increasing number of data points to
 17 suggest that you're going to see very little wafer addition, if any." Maddock reiterated
 18 Micron's commitment to the common plan: "Well, I mean we have basically announced
 19 what we intend to do in terms of bit growth and we're sticking to that." In response to a
 20 question as to whether he foresaw any of the producers increasing wafer capacity,
 21 Maddock noted: "while I would love to tell you that our competitors have sent us a memo
 22 telling us what their expansion plans are, unfortunately I can't report that, but certainly
 23 we read the same thing that each of you read and it does suggest that the focus of capital
 24 spend in 2017 is going to be NAND as opposed to DRAM on the part of many folks in
 25 the competitors face. And as I mentioned, we would expect all of our bit growth to come
 26 from technology transition as opposed to any sort of wafer expansion. There have been
 27 some pretty dramatic things published which I won't repeat here relative to potentially
 28 what's going on with some of our competitors and how they're choosing to use their

1 productive capacity, but there's no sign anywhere in the market that suggests there's a
 2 plan to expand DRAM wafer capacity.”

3 73. By October 2016, analysts noted that “[w]ith DRAM prices rebounding to 7
 4 month highs, Micron is benefiting as the supply glut in the market has dried up following
 5 aggressive cut backs in production amid signs of a bounce back in demand.” Micron’s
 6 then-CEO Mark Durcan said “We are seeing marketing conditions in terms of both
 7 slowing supply growth and improving demand across key segments.”

8 74. On Micron’s October 4, 2016 earnings call, Mr. Durcan noted “we’ve seen
 9 further evidence that DRAM wafer output is declining as a result of lost throughput
 10 related to the 20-nanometer and 1X nanometer conversions. Absent some replacement of
 11 these wafers, we could see industry supply growth as low as mid-teens in 2017. As some
 12 of lost wafer output is replaced, industry supply growth could be in the high-teens percent
 13 range. This compares to our long-term bit demand growth forecast in the low to mid 20%
 14 range.”

15 75. In its October 27, 2016 earnings call, Samsung again noted that its bit
 16 growth rates would “be in line with market bit growth in DRAM next year. Once again,
 17 as we have always mentioned, regarding DRAM, our focus is not to increase our market
 18 share but to maximize our profits.” In response to a question on the potential to add wafer
 19 capacity, Samsung reiterated its position: “Regarding the DRAM, once again, our bit
 20 growth will be focused more on process migration. And so as we have mentioned, we
 21 will be focusing on quickly and flexibly responding to the market environment as it
 22 unfolds.” Reiterating again, in response to another question, “And once again, in terms of
 23 our DRAM business, our basic approach [is] that we will be more profitability-oriented
 24 than market share- oriented and we plan to next year, at this point, expect to grow at
 25 market level.”

26 76. Samsung stated that although they would be executing “supplementary
 27 investment on the remaining space of Line 17,” “this is not to increase capacity, but to
 28 supplement and make up for the natural capacity decrease that we experience as we

1 migrate towards 1X.” Continuing, “Currently we have no plans of increase – or adding a
 2 DRAM capacity to the Pyeongtaek campus.”

3 77. At the Credit Suisse Technology Media & Telecom Conference on
 4 November 29, 2016, Ernie Maddock, Micron’s CFO noted “I think a lot of that
 5 confidence goes back to the fundamental view of this supply and this demand. With no
 6 way for additions, we are increasingly present that you are going to see this supply grow,
 7 at something less than 20%, and even with some room for error on the DRAM with
 8 demand side, we still see a number there north of 20%.” He continued “our objective is to
 9 close the gap and make it as narrow as reasonable without doing anything that would
 10 potentially be disruptive to our performance or the industry’s performance.”

11 78. At the Barclays Technology Conference on December 7, 2016, Micron’s
 12 Ernie Maddock recognized the change in Samsung’s behavior, noting that the “absence
 13 of capacity additions” meant the industry was now “back into this fundamentally
 14 healthier period.” Mr. Maddock also forecast that supply would grow slower than
 15 demand: “So as we look at the supply side of the house, somewhat between 15% and
 16 20% supply growth coming from these technology transitions and that is against a
 17 demand environment that we think is going to grow somewhere in the range of 20% to
 18 25% on a bip basis.”

19 79. On Micron’s earnings call on December 21, 2016, Micron’s then-CEO
 20 Mark Durcan stated: “Well I think that part of what happened in the last latter stages of
 21 the last cycle where perhaps a little bit a miscalculation by one of the suppliers, but that
 22 they probably learned from so there is that.” He continued that Micron “had no plans to
 23 add new wafers this year.” In response to investor questions concerning additional
 24 capacity, he noted “We don’t have great crystal ball as to where our competitors are
 25 doing. We read the same reports that you guys read. All of that plus all the other internal
 26 intelligence we can generate that baked into our ranges and in the data sheet that we
 27 provided. So I think there has been some chatter recently potentially about few
 28 incremental wafers from one of the suppliers. Our view of that is if that were to happen,

1 it's a relatively minor adjustment in terms of the overall scope of the bit growth that
 2 we're projecting and it would probably not cause us to change that range that we've
 3 giving you."

4 80. At the Needham Growth Conference on January 10, 2017, Micron's CFO
 5 Ernie Maddock, discussed Micron's confidence that its competitors would not increase
 6 supply: "I think their comments need to stand on their own and their comment seems to
 7 suggest a rational approach to addressing the supply/demand constraints of the DRAM
 8 market." Maddock repeated Micron's commitment to the common plan: "Our review of
 9 the DRAM business is that there will be somewhere between 15% and 20% bit supply
 10 from Micron and all the other participants in the industry. And then from a demand point
 11 of view, we think demand is going to be somewhere a little bit north of 20%, so
 12 somewhere between 20% and 25%."

13 81. At its fourth quarter earnings call for 2016, Samsung again committed to
 14 limit its bit growth in line with the market: "For Q1 2017, we expect the DRAM market
 15 bit growth to decline high single digit and our bit growth will decline low-teens. For
 16 2017, whole year, we expect year-end bit growth to be high-teens and our bit growth will
 17 be similar level." In response to an investor question concerning Samsung's ability to
 18 boost capacity, Samsung reiterated its focus on technology migration, explaining "we
 19 believe we are able to cover the current market demand through our technology
 20 migration. So that is why we will be maintaining our operation flexibly and try to cover
 21 the market demand within our technology migration. So, given the size as well as the lead
 22 time necessary for increase of DRAM capacity, we believe that temporary increase of
 23 DRAM supply is not very easy."

24 82. On January 25, 2017, SK Hynix announced its plans for "a DRAM bit
 25 shipment growth that is on par with the market for this year." SK Hynix similarly warned
 26 that "DRAM chip supply growth may not keep up with demand."

27 83. In March 2017, Micron's then-CEO Mark Durcan spoke to a reporter for
 28 Barron's about supply levels: Durcan said in response to my question of whether a whole

1 bunch of new supply will enter the market, “We don’t see that happening right now.”
 2 “As best we can tell, when we put all that we know in our own model, there is not a big
 3 new wave of supply coming.” Of course, “Further out, you get less certainty,” he
 4 conceded, “because people can add wafers, but right now, there are fairly long lead times
 5 on equipment, so that’s not going to happen any time soon.” He added, “There are not
 6 enough new wafers coming to create oversupply.”

7 84. On March 9, 2017, Micron’s CFO Ernie Maddock stated: “15% to 20% bit
 8 growth in supply and 20%, 25% sort of intrinsic demand growth” at the Susquehanna
 9 Semi, Storage, & Technology Conference. Maddock noted “But at the end of the day, it
 10 has typically not been Micron who has expanded industry capacity when the margin
 11 profile upgrade . . . all of the statements and all of the actions thus far suggest the things
 12 may indeed different in terms of how the participants are thinking about, the balance of
 13 profitability versus market share.” Maddock reiterated that Micron is “public about the
 14 fact that we have no current plan to add wafers in any form.”

15 85. On March 23, 2017, Micron also reiterated an industry-wide forecast of bit
 16 supply growth between 15-20% and demand growth between 20-25%: “It’s still, in our
 17 view, it’s 15% to 20% supply growth this year, could actually be less than that if there’s
 18 less new wafers than we have in our plan. Demand is still 20% plus.” In response to a
 19 question as to whether Micron would add wafer capacity because of “such strong pricing
 20 out there in the market,” Micron’s then-CEO Mark Durcan responded: “We’re not
 21 focused on adding more supply . . . We do have white space in both our Fab 16 in
 22 Taichung as well as Fab 10X, but we’re not planning any capacity additions this year.” In
 23 response to a question concerning Samsung expanding supply, Durcan explained,
 24 “Again, I think the last cycle was a little different with that instability in supply created
 25 by the Hynix fire. I don’t know why they would intentionally repeat the mistake from last
 26 cycle. They probably are enjoying making good margins . . . Samsung is actually
 27 probably on the low end over the next couple of years relative to what’s going on in the
 28 industry as a whole. And the industry as a whole is probably a little bit south of where we

1 think demand growth is.”

2 86. On its April 24, 2017, first-quarter earnings call, SK Hynix reiterated that
 3 “the current projection for about 20% level growth is also based on the assessment of . . .
 4 all of the factors.”

5 87. At Samsung’s first-quarter earnings call for 2017 on April 27, 2017,
 6 Samsung confirmed their plan for their DRAM bit growth to be “aligned with the
 7 market.” “For DRAM in Q1, our bit growth declined low-teens, while ASP increased
 8 low-20%. For second quarter, we expect DRAM market bit growth to be mid-single digit
 9 increase and we expect our DRAM bit growth in second quarter to be high-single digit.
 10 And for the year, we expect DRAM market bit growth to be high-teens and we expect to
 11 grow in line with the market.” Again, in response to investor questions about capacity,
 12 Samsung repeated that “we have no plans of additional capacity,” other than to “make up
 13 for the loss that happens as we migrate to the 1X.” Samsung noted that “we’ve always
 14 had a very flexible capacity operation that optimizes the capacity for each product
 15 depending on the market situation that unfolds.”

16 88. In response to investor questions concerning the threat from Chinese
 17 manufacturers entering the DRAM market, Samsung stated that the memory market “it’s
 18 now protected by quite a high entry barrier, because memory business today requires not
 19 only the very cutting-edge processors migrated, but also needs to have various high
 20 value-add solutions to go with the products.”

21 89. On May 24, 2017, Micron’s CFO, Ernie Maddock, at the JP Morgan Global
 22 Internet, Media and Technology Brokers Conference noted that Micron and its
 23 competitors—unlike previous years—were being careful not to add supply: “if you listen
 24 to the commentary coming from industry participants on the supply side it reflects a great
 25 deal of discipline and thoughtfulness with respect to how the industry participants are
 26 considering supply expansion . . . Although we don’t speak for the industry, the other
 27 participants have spoken and indicated a great deal of discipline.” Micron reiterated
 28 supply growth that matched that of its competitors: “on the DRAM side you’re going to

1 see somewhere between 15% and 20% growth in bits supplied, that's something that the
 2 other suppliers in the market are also saying, within reasonable range." Micron also
 3 flagged that its plans to avoid adding wafer capacity were consistent with its competitors:
 4 "I think that's reasonably consistent with certainly what we've said about our intent, and
 5 then certainly the public comments of the other industry participants have been pretty
 6 much exactly that. That while you do get some wafer loss as a result of technology
 7 transitions, the intent that we have is to maintain flat wafer outs, so essentially you are
 8 adding a little bit of capacity to make up for those lost wafer outs, but as an industry as a
 9 whole, you are not adding substantial incremental industry wafers and that would
 10 contribute to or allow you to get into this 15% to 20% range in terms of bit growth."

11 90. On June 6, 2017 at the Bank of America Merrill Lynch 2017 Global
 12 Technology Conference, Ernie Maddock, Micron's CFO, noted the consistent approach
 13 taken to limit supply across the industry: "And we feel that from a larger perspective over
 14 the course of a multi-year period, it feels as very much as if you'll have good balance
 15 between supply and demand as long as capital discipline is exercised. And certainly
 16 Micron has indicated the difference to be reasonably disciplined with its capital
 17 investments, and other industry competitors in their particular public disclosure[s] have
 18 said similar things." In response to questions as to how Micron expected competitors to
 19 act in the improved industry circumstances, Micron noted "I can say our view of industry
 20 bit demand will have to be materially different than in the peers to be today to begin to
 21 have a think about expanding capacity well beyond where we are thinking today which is
 22 predominantly to get that capacity through technology transition . . . I don't think our
 23 view of how we look at the industry is very – very different than how other rational smart
 24 people sitting and other competitors tend to look at the industry."

25 91. At the Robert W. Baird Global Consumer Technology conference on June
 26 8, 2017, Ernie Maddock, Micron's CFO noted: "[T]here has actually been much more
 27 disciplined behavior on the part of the remaining industry participants, of which there are
 28 now only 3, it's Micron, Samsung and Hynix. And so while each of us is assessing the

1 market, looking at the market, I think there's great consistency between suppliers relative
 2 to our view of market growth opportunities on the demand side. And what you see being
 3 exercised today is disciplined investment around expansion of capacity relative to
 4 expansion of demand. And each one of us has made our own independent comments on
 5 what we think makes sense for our particular company. In Micron's case, we said that we
 6 have no plans for additional new wafer fab capacity that we will get the bits that we
 7 require to serve the market from technology transitions."

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 14 exercised today is disciplined investment around expansion of capacity relative to
 15 expansion of demand. And each one of us has made our own independent comments on
 16 what we think makes sense for our particular company. In Micron's case, we said that we
 17 have no plans for additional new wafer fab capacity that we will get the bits that we
 18 require to serve the market from technology transitions."

19 93. On Micron's June 29, 2017 earnings call, Micron President, CEO and
 20 Director Sanjay Mehrota noted Micron's position that "for calendar 2017, we expect
 21 DRAM industry bit supply growth of between 15% and 20%, slightly below our view of
 22 demand growth." In response to a question regarding Micron's views on adding more
 23 DRAM wafer capacity, Mehrota reiterated Micron would focus on technology transitions
 24 instead of increasing capacity: "In terms of any new capacity, I mean, we would certainly
 25 have to first make sure that we have captured the maximum potential of our technology
 26 transition capability in manufacturing. And then we'll have to certainly see that there is
 27 sustained projection or sustained demand growth in the years ahead before we consider
 28 adding new capacity."

1 94. At SK Hynix's second quarter earnings call on July 24, 2017, SK Hynix
 2 similarly stated its plan for DRAM bit shipment at "low 20% on par with the market."

3 95. At Samsung's earnings call on July 27, 2017, Samsung again stated its plan
 4 to keep its bit growth aligned with the market growth. "In the third quarter, we expect
 5 market DRAM bit growth to be high-single digit, and we expect our DRAM bit growth to
 6 be low-teens. And for the year, we expect the DRAM market bit growth to be high-teens,
 7 and we expect our bit growth to be aligned with the market growth." Samsung recognized
 8 that "[d]ue to restriction of industry supply, supply and demand remained solid and price
 9 continued to rise." In response to investor questions, Samsung reiterated again, that in
 10 contrast to its pre-Class Period aggressive market share focus, "we will refrain from, for
 11 example, increasing market share, fighting on volume. . . . we will flexibly manage our
 12 capacity by very closely monitoring the market situation, as well as the supply and
 13 demand balance."

14 96. On August 7, 2017, Sanjay Mehrota, Micron's CEO, repeated the same gap
 15 between supply and demand at the KeyBanc Capital Markets Annual Global Technology
 16 Leadership Forum Conference: "overall bit supply in the industry is in 15% to 20%
 17 range. And when you look at the bit supply growth perhaps, may be a little bit toward the
 18 higher end of that 15% to 20% range. But, the demand projection, again, from all the
 19 mega markets that I earlier talked about, point to greater than 20% demand for the
 20 industry. So, I do believe that for 2017 and heading into 2018 as well, the industry
 21 fundamentals will be healthy."

22 97. At the Citi 2017 Global Technology Conference on September 6, 2017,
 23 Micron CFO Ernie Maddock recognized the importance of consolidation to limiting the
 24 increase in capacity and reassured investors that this supply discipline would continue
 25 into 2018: "Relative to the supply side, I do think consolidation has been very
 26 instrumental in having a disciplined and orderly expansion of supply. We have certainly
 27 seen that now over period of a couple of years and we expect based on everything that we
 28 can see that you're going to continue to have a disciplined expansion of supply as we look

1 forward into fiscal '18 for Micron."

2 98. On Micron's fourth quarter 2017 earnings call on September 27, 2017,
 3 Micron told investors that it expected the "industry to remain moderately undersupplied
 4 for the rest of 2017 for . . . DRAM." In response to questions as to when Micron would
 5 begin to outgrow the industry, Micron noted "I would also tell you that our objective over
 6 a multiyear period is to grow at about industry levels . . . really important is the segment
 7 that we intend to grow aligned with industry over the course of these multiyear periods."

8 99. Similarly, SK Hynix reported on its earnings call on October 16, 2017 that
 9 it intended to grow its DRAM capacity "on par with the market" in 2018, even though the
 10 DRAM market was in a state of undersupply. 106. At Samsung's earnings call on
 11 October 31, 2017, Samsung again signaled its plan to stay in line with the market. "For
 12 DRAM, in the third quarter, our bit growth came in high single-digit and our ASP grew
 13 high single-digit as well. For the Q4, we expect market DRAM bit growth to be low
 14 single-digit and we expect our growth to be similar. That will bring the 2017 market
 15 DRAM bit growth to be approximately 20% and our bit growth will be mid-teens."
 16 Samsung again reiterated that it would maintain its "profit first rather than market share
 17 policy." In response to investor questions, Samsung noted that its "basic approach to
 18 DRAM capacity management is that we will flexibly manage our capacity especially
 19 depending on the market situation for each product, as well as the migration in the 10-
 20 nano class process technology." Samsung also noted that despite a prior decision "to
 21 convert part of Hwaseong NAND capacity to DRAM . . . because of the inefficiencies
 22 that are caused as a result of this conversion, we have actually decided to reduce the size
 23 of the NAND conversion to DRAM than originally planned and rather use part of the
 24 upper floor of Pyeongtaek for DRAM capacity."

25 100. By 2017 Samsung had lost market share. In response to a direct investor
 26 question as to whether Samsung planned "to regain its previous market share next year or
 27 will you be more trying to maintain where you stand currently?" Samsung again
 28 reiterated its commitment to avoiding competition for market share: "the current

1 guidance that we can give you is that for next year, our bit growth for DRAM is expected
 2 to be at market growth levels.” The ‘declining market shares of leaders’ is a plus factor
 3 potentially indicative of cartel conduct. Samsung had the highest market share throughout
 4 this time period, yet did not respond to the decline in its market share, focusing instead on
 5 growing at market growth levels.

6 101. At the Credit Suisse Annual Technology, Media & Telecom Conference on
 7 November 28, 2017, Micron CEO Sanjay Mehrota repeated the industry approach to keep
 8 supply growth below demand growth: “For fiscal year ’18, what we have said is, industry
 9 supply that growth 20% . . . while the demand trends I believe will continue to be
 10 somewhat stronger than that . . . there may be some wafer capacity additions but they will
 11 remain relatively small.”

12 102. At the Nasdaq Investor Conference on December 6, 2017, Micron’s CFO
 13 Ernie Maddock stated: “We are not adding wafers for either technology in 2017. I think if
 14 you look at the public comments of other suppliers they are adding marginal numbers of
 15 wafers. But essentially if you look at the industry in aggregate even at the end of 2018 it’s
 16 altogether possible for DRAM that the number of wafers the industry produces is the
 17 same or slightly less than it was some years ago.” Maddock noted in response to another
 18 question, “if you look at the public commentary of all the industry participants . . . I think
 19 there is a general belief that the industry participants are keenly aware of the fact that the
 20 DRAM market is relatively inelastic and the way you serve that market is by making sure
 21 there is adequate, but not excess supply.”

22 103. By late 2017, reports indicated Samsung would soon increase capacity to
 23 lower prices and hurt the entry of Chinese competitors to the DRAM market. In its
 24 earnings call on January 31, 2018, Samsung again signaled its expectation to align with
 25 the market in terms of bit growth: “In the fourth quarter, our DRAM bit growth came in
 26 low single-digit and we saw our ASP increase about 10%. In the first quarter, we expect
 27 the market DRAM bit growth to decline low single-digit and our bit growth will come in
 28 similar to that of the market. And for 2018, at this point, we expect the DRAM market bit

1 growth to be about 20% and our bit growth will also come in similar level.” Samsung
 2 attributed the lack of capacity growth to “even though the industry has been working very
 3 hard to increase supply, there are difficulties because of the 10-nano class technology
 4 being very difficult. Also there are limits in terms of the cleanrooms that are available.”

5 104. The conspiracy was successful. Global DRAM prices rose from June 2016,
 6 “on account of higher DRAM content in mobile devices and significant under-supply of
 7 PC DRAM and a slowdown in capacity expansions.” According to reports, DRAM
 8 revenue grew 76% in 2017, with Samsung reporting a total of \$10.1 billion in DRAM
 9 revenue for the fourth quarter of 2017. SK Hynix reported fourth quarter DRAM revenue
 10 of \$6.3 billion, while Micron reported \$4.6 billion in DRAM revenue for the same period.
 11 Industry reports credited this “near-historic high market spike” to “a lack of major fab
 12 expansion plans, yield difficulties with leading-edge . . . processes, demand for high
 13 performance (graphics) DRAM from gaming systems and data center-based server
 14 applications, and increased average content for mobile DRAM used in smartphones.”
 15 Industry reports noted that “most PC OEMs negotiated first quarter DRAM contracts at
 16 the end of 2016, when DRAM was in tight supply. Not only did these price increases
 17 affect PC DRAM but they also spilled over into the server and mobile DRAM markets,
 18 increasing the price of mobile DRAM products by nearly 10 percent on average . . .”

19 105. As the prices for DRAM increased, Defendants’ revenue increased, rising
 20 more than 50% during the Class Period. Between Q1 2016 and Q3 2017, Defendants’
 21 revenues from global DRAM sales more than doubled. In Q3 2017, Samsung achieved a
 22 record-high revenue of \$8.7 billion from its global DRAM sales (Q1 2016 revenue was
 23 \$3.9 billion); SK Hynix achieved record-high revenue of \$5.5 billion from its global
 24 DRAM sales (Q1 2016 revenue was \$2.3 billion), and Micron achieved record-high
 25 revenue of \$4.0 billion from its global DRAM sales (Q1 2016 revenue was \$1.5 billion).
 26 In Q1 2018, all of these top three suppliers have pushed their respective operating
 27 margins to 50-70%, the highest recorded in the history of their companies.

28 106. DRAM prices continued to climb, and then abruptly stopped in early 2018,

just after China's antitrust regulator, the National Development and Reform Commission ("NDRC"), announced that it had begun an investigation into the DRAM industry due to the noticeable and sharp rise in the price of DRAM over the 18-month period from June 2016 to December 2017. On February 1, 2018, it was reported that the NDRC and Samsung signed a Memorandum of Understanding that would result in moderations to the price increases of DRAM in 2018.

107. In April 2018, Hynix publicly announced that it was adding wafer capacity by 6- 7% per year in order to meet demand growth. This addition of wafer capacity was a change in practice from the Class Period where the Defendants artificially constrained the growth of wafer capacity in order to inflate the price of DRAM.

108. It has been reported that in May 2018, Micron was summoned by Chinese antitrust authorities to a meeting, possibly to discuss its DRAM pricing practices.

109. Most recently, on May 31 2018, Bloomberg reported that Chinese antitrust investigators raided Micron, Samsung, and Hynix's offices in connection with their DRAM antitrust investigation. The Chinese government's investigation remains ongoing.

The Department of Justice Previously Brought Wide Ranging Antitrust Legal Action Related to Pricing in the DRAM Industry

110. The United States Department of Justice (“DOJ”) brought criminal charges against the Defendants (and other makers of DRAM that existed at the time) in 2005, for conspiring to fix the prices of DRAM sold in the United States between 1999 and 2002. Samsung and SK Hynix² pleaded guilty to the DOJ’s charges, paying some of the largest criminal fines in history for their illegal conduct. Micron also admitted to participating in the conspiracy, but received amnesty from prosecution in exchange for its cooperation under the DOJ’s Antitrust Corporate Leniency Program. The DOJ imposed a \$185 million criminal fine on SK Hynix in 2005, the fourth largest criminal antitrust fine at that time. That same year, Samsung agreed to plead guilty and paid a \$300 million fine. Samsung’s fine was the second largest criminal antitrust fine in U.S. history and the largest criminal fine imposed since 1999 at that time.

111. Fourteen individual employees of Defendants also pleaded guilty for participating in the conspiracy. They paid fines of \$250,000 each and served prison sentences ranging from seven to fourteen months. Some of Defendants' employees involved in the collusive acts of the last DRAM conspiracy still hold key leadership positions with Defendants today. Defendants' previous convictions for conspiring to fix DRAM prices support the plausibility of the conspiracy alleged in this complaint

VIOLATIONS ALLEGED

112. Plaintiff incorporates and realleges, as though fully set forth herein, each and every allegation set forth in the preceding paragraphs of this complaint.

113. Beginning at least as early as June 1, 2016, the exact date being unknown to Plaintiff, Defendants, by and through their officers, directors, employees, agents, or other representatives, entered into a continuing contract, combination, or conspiracy to unreasonably restrain trade and commerce in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1. 144. Defendants, by their unlawful conspiracy, artificially raised, inflated and maintained the market price of DRAM as herein alleged.

114. The contract, combination, or conspiracy consisted of a continuing agreement, understanding, and concert of action among Defendants and their co-conspirators, the substantial terms of which were to fix, raise, maintain, and stabilize the prices of, and/or allocate the market for, DRAM they sold in the United States.

115. For the purpose of formulating and effectuating their contract, combination or conspiracy, Defendants and their co-conspirators did those things they contracted, combined or conspired to do, including: a. Participating in meetings and conversations to discuss the prices of and/or supply for DRAM; b. Agreeing to manipulate prices and supply so as to boost DRAM sales in a manner that deprived direct purchasers of free and open competition; c. Coordinating the restriction of DRAM capacity in the market; and d. Selling DRAM to customers in the United States at non-competitive prices.

116. As a direct result of the unlawful conduct of Defendants and their co-conspirators in furtherance of their continuing contract, combination or conspiracy,

1 Plaintiff and other members of the class have been injured in their business and property
 2 in that they have paid more for DRAM than they would have paid in the absence of
 3 Defendants' price-fixing.

4 **EFFECTS**

5 117. The above combination and conspiracy has had the following effects,
 6 among others: a. Price competition in the sale of DRAM by Defendants and their co-
 7 conspirators has been restrained, suppressed and eliminated throughout the United States;
 8 b. Prices for DRAM sold by Defendants have been raised, fixed, maintained, and
 9 stabilized at artificially high and noncompetitive levels through the United States; and c.
 10 Direct purchasers of DRAM from Defendants have been deprived of the benefit of free
 11 and open competition in the purchase of DRAM.

12 118. As a direct and proximate result of the unlawful conduct of Defendants,
 13 Plaintiff and other members of the class have been injured in their business and property
 14 in that they paid more for DRAM than they otherwise would have paid in the absence of
 15 the unlawful conduct of Defendants.

16 **DAMAGES**

17 119. During the Class Period, Plaintiff and other members of the class purchases
 18 DRAM directly from Defendants, or their subsidiaries, agents, and/or affiliates, and, by
 19 reason of the antitrust violations alleged herein, paid more for such products than they
 20 would have paid in the absence of such antitrust violations. As a result, Plaintiff and the
 21 other members of the class have sustained damages to their business and property in an
 22 amount to be determined at trial.

23 **PRAAYER FOR RELIEF**

24 **WHEREFORE**, Plaintiff seeks judgment against Defendants as follows:

25 120. That the Court determine that this action may be maintained as a class
 26 action under Rule 23(b)(3) of the Federal Rules of Civil Procedure, that Plaintiff be
 27 certified as class representative, and Plaintiff's counsel be appointed as counsel for the
 28 Class;

1 121. That the unlawful contract, combination or conspiracy alleged be adjudged
2 and decreed to be an unreasonable restraint of trade or commerce in violation of Section
3 of the Sherman Act;

4 122. That Plaintiff and the Class recover damages, as provided by law,
5 determined to have been sustained as to each of them, in an amount to be trebled in
6 accordance with the antitrust laws, and that judgment be entered against Defendants on
7 behalf of Plaintiff and the Class;

8 123. That Plaintiff and the Class recover their costs of suit, including reasonable
9 attorneys' fees, as provided by law;

10 124. That Defendants, their subsidiaries, affiliates, successors, transferees,
11 assignees and the respective officers, directors, partners, agents, and employees thereof
12 and all other persons acting or claiming to act on their behalf be permanently enjoined
13 and restrained from continuing and maintaining the combination, conspiracy, or
14 agreement alleged herein;

15 125. That Plaintiff and the Class be awarded pre-judgment and post-judgment
16 interest, and that such interest be awarded at the highest legal rate from and after the date
17 of service of the initial complaint in this action; and

18 126. For such other and further relief as is just under the circumstances.

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1 **DEMAND FOR JURY TRIAL**

2 Pursuant to Federal Rule of Civil Procedure 38(b), Plaintiff demands a trial by jury
3 of all of the claims asserted in this complaint that are so triable.

4 Dated: August 7, 2018

GROSS & BELSKY P.C.

5

6 By: /s/ Terry Gross
7 TERRY GROSS

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ATTESTATION

I, Terry Gross, hereby attest, pursuant to Civil Local Rule 5-1(i)(3), that concurrence in the filing of this document has been obtained from all signatories.

By: /s/ Terry Gross
TERRY GROSS